

## CLAIMS

What is claimed is:

1. A system, comprising:

a first communication node of a plurality of communication nodes connected with  
 5 processorless central equipment, wherein the first communication node sends one or more  
 first portions of node-output information to the processorless central equipment;

wherein one or more additional communication nodes of the plurality of  
 communication nodes send one or more additional portions of node-output information to the  
 processorless central equipment;

10 wherein the first communication node receives from the processorless central  
 equipment a portion of central-output information, wherein the portion of central-output  
 information comprises the one or more first portions of node-output information and the one  
 or more additional portions of node-output information.

2. The system of claim 1, wherein the first communication node sends the one or  
 15 more first portions of node-output information to the processorless central equipment in a  
 communication frame;

wherein the first communication node receives from the processorless central  
 equipment the portion of central-output information in the communication frame.

3. The system of claim 1, wherein the first communication node sends the one or more first portions of node-output information to the processorless central equipment no later than an interval before a start of a communication frame in which the first communication node receives from the processorless central equipment the portion of central-output information, wherein a time duration of the interval is minor relative to a time duration of the communication frame.

4. The system of claim 3 in combination with a second communication node of the one or more additional communication nodes, wherein the second communication node sends one or more of the one or more additional portions of node-output information to the processorless central equipment no later than the interval before a start of a communication frame in which the second communication node receives from the processorless central equipment the portion of central-output information, wherein the communication frame in which the first communication node receives from the processorless central equipment the portion of central-output information and the communication frame in which the second communication node receives from the processorless central equipment the portion of central-output information comprise an approximately same time duration.

5. The system of claim 1, wherein the first communication node sends one of the one or more first portions of node-output information to the processorless central equipment within an interval before a time slot of a communication frame of the portion of central-output information, wherein a time duration of the interval is minor relative to a time duration of the communication frame;

wherein the first communication node receives from the processorless central equipment the one of the one or more first portions of node-output information in the time slot of the communication frame of the portion of central-output information.

6. The system of claim 5, wherein the time slot comprises a pre-assigned time slot of a set of time slots that comprises the communication frame of the portion of central-output information;

wherein the first communication node sends one of the one or more first portions of node-output information to the processorless central equipment within the interval before the pre-assigned time slot of the set of time slots that comprises the communication frame of the portion of central-output information;

wherein the first communication node receives from the processorless central equipment the one of the one or more first portions of node-output information in the pre-assigned time slot of the set of time slots that comprises the communication frame of the portion of central-output information.

7. The system of claim 6 in combination with the processorless central equipment, wherein the processorless central equipment gates the one of the one or more first portions of node-output information with a clock to obtain the one of the one or more first portions of node-output information in the pre-assigned time slot of the set of time slots that  
5 comprises the communication frame of the portion of central-output information.

8. The system of claim 5, wherein the time duration of the interval is approximately equal to a maximal expected signal-propagation delay between the processorless central equipment and the plurality of communication nodes over a respective plurality of operable passages.

10 9. The system of claim 5, wherein the time duration of the interval is less than five percent of the time duration of the communication frame.

10. The system of claim 5, wherein the interval comprises a first interval, wherein the first communication node receives from the processorless central equipment the portion of central-output information in the time slot of the communication frame within a second interval, wherein a time duration of the second interval is minor relative to a time duration of the communication frame.

11. The system of claim 5, wherein the one of the one or more first portions of node-output information comprises a first one of the one or more first portions of node-output information, wherein the time slot of the communication frame of the portion of central-output information comprises a first time slot of the communication frame of the portion of central-output information;

wherein the first communication node sends a second one of the one or more first portions of node-output information to the processorless central equipment within the interval before a second time slot of the communication frame of the portion of central-output information;

wherein the first communication node receives from the processorless central equipment the second one of the one or more first portions of node-output information in the second time slot of the portion of central-output information.

12. The system of claim 1, wherein the first communication node sends one of the one or more first portions of node-output information to the processorless central equipment;

wherein the first communication node receives from the processorless central equipment the one of the one or more first portions of node-output information in a time slot  
5 of a communication frame of the portion of central-output information;

wherein the first communication node compares one or more values of the one of the one or more first portions of node-output information with one or more values from the time slot of the communication frame of the portion of central-output information to check correctness of operation of one or more portions of the system.

10 13. The system of claim 1, wherein the first communication node processes any one or more of:

the one or more first portions of node-output information; and

the one or more additional portions of node-output information  
from the portion of central-output information.

15 14. The system of claim 1 in combination with a second communication node of the one or more additional communication nodes, wherein the second communication node sends one or more of the one or more additional portions of node-output information to the processorless central equipment, wherein the second communication node receives from the processorless central equipment the portion of central-output information.

15. The system of claim 1, further comprising a fiberoptic passage of one or more fiberoptic passages that serve to connect the first communication node with the processorless central equipment, wherein the first communication node sends the one or more first portions of node-output information to the processorless central equipment over the fiberoptic passage.

5 16. The system of claim 1, further comprising a fiberoptic passage of one or more fiberoptic passages that serve to connect the first communication node with the processorless central equipment, wherein the first communication node receives from the processorless central equipment the portion of central-output information over the fiberoptic passage.

10 17. The system of claim 1, further comprising a copper passage of one or more copper passages that serve to connect the first communication node with the processorless central equipment, wherein the first communication node sends the one or more first portions of node-output information to the processorless central equipment over the copper passage.

15 18. The system of claim 1, further comprising a copper passage of one or more copper passages that serve to connect the first communication node with the processorless central equipment, wherein the first communication node receives from the processorless central equipment the portion of central-output information over the copper passage.

19. The system of claim 1 in combination with the processorless central equipment, wherein the processorless central equipment receives the one or more first portions of node-output information and the one or more additional portions of node-output information no earlier than an interval before a start of a communication frame in which the processorless central equipment sends the portion of central-output information to the plurality of communication nodes, wherein a time duration of the interval is minor relative to a time duration of the communication frame.

20. The system of claim 1 in combination with the processorless central equipment, wherein the processorless central equipment receives one of the one or more first portions of node-output information within an interval before a time slot of a communication frame of the portion of central-output information, wherein a time duration of the interval is minor relative to a time duration of the communication frame;

wherein the processorless central equipment sends the one of the one or more first portions of node-output information to the first communication node in the time slot of the communication frame of the portion of central-output information.

21. The system of claim 1 in combination with the processorless central equipment, wherein the processorless central equipment within a communication frame employs the one or more first portions of node-output information and the one or more additional portions of node-output information to produce the portion of central-output information and sends the portion of central-output information to the plurality of communication nodes.



22. The system of claim 1 in combination with the processorless central equipment and the one or more additional communication nodes, wherein the first communication node, the processorless central equipment, and the one or more additional communication nodes comprise a time division multiplexing architecture.

23. The system of claim 1 in combination with the processorless central equipment and a second communication node of the one or more additional communication nodes;

wherein the first communication node sends one of the one or more first portions of node-output information to the processorless central equipment within an interval before a first pre-assigned time slot of a first set of time slots that comprises a first communication frame in which the first communication node receives from the processorless central equipment the portion of central-output information and within the interval before the first pre-assigned time slot of a second set of time slots that comprises a second communication frame in which the second communication node receives from the processorless central equipment the portion of central-output information, wherein the first and second communication frames comprise an approximately same time duration, wherein a time duration of the interval is minor relative to the approximately same time duration of the first and second communication frames;

wherein the second communication node sends one of the one or more additional portions of node-output information to the processorless central equipment within the interval before a second pre-assigned time slot of the first set of time slots that comprises the first communication frame in which the first communication node receives from the processorless central equipment the portion of central-output information and within the interval before the second pre-assigned time slot of the second set of time slots that comprises the second communication frame in which the second communication node receives from the processorless central equipment the portion of central-output information;

wherein the processorless central equipment gates the one of the one or more first portions of node-output information with a clock to obtain the one of the one or more first portions of node-output information in the first pre-assigned time slot of the first set of time slots and in the first pre-assigned time slot of the second set of time slots;

5 wherein the processorless central equipment gates the one of the one or more additional portions of node-output information with the clock to obtain the one of the one or more additional portions of node-output information in the second pre-assigned time slot of the first set of time slots and in the second pre-assigned time slot of the second set of time slots;

10 wherein the first communication node receives the one of the one or more first portions of node-output information in the first pre-assigned time slot of the first set of time slots and the one of the one or more additional portions of node-output information in the second pre-assigned time slot of the first set of time slots;

15 wherein the second communication node receives the one of the one or more first portions of node-output information in the first pre-assigned time slot of the second set of time slots and the one of the one or more additional portions of node-output information in the second pre-assigned time slot of the second set of time slots.

24. The system of claim 1, wherein the first communication node sends one of the one or more first portions of node-output information to the processorless central equipment in at least a majority of time slots of a first set of time slots that corresponds to at least a majority of time slots of a second set of time slots of the portion of central-output  
5 information;

wherein the first communication node identifies one or more time slots of the second set of time slots that are assigned to the first communication node through identification of the one of the one or more first portions of node-output information in each of the one or more time slots, that are assigned to the first communication node, of the second set of time slots of  
10 the portion of central-output information.

25. The system of claim 24, wherein the first communication node sends the one of the one or more first portions of node-output information to the processorless central equipment in one or more time slots of the first set of time slots contemporaneously with receipt by the first communication node of one or more time slots of the second set of time slots of the portion of central-output information.

26. The system of claim 1 in combination with the processorless central equipment, wherein the first communication node sends one of the one or more first portions of node-output information to the processorless central equipment in a time slot, not assigned to the first communication node, of a first set of time slots that corresponds to a time slot, not assigned to the first communication node, of a second set of time slots of the portion of central-output information;

wherein the processorless central equipment withholds the one of the one or more first portions of node-output information from the time slot, not assigned to the first communication node, of the second set of time slots of the portion of central-output information through clock gating of the one or more first portions of node-output information in the time slot, not assigned to the first communication node, of the first set of time slots.

27. The system of claim 1 in combination with the processorless central equipment, wherein the processorless central equipment employs one of the one or more first portions of node-output information, a clock, and a plurality of flip-flops to determine a zero or more amount of delay to assert for relative synchronization between a stable part of the one of the one or more first portions of node-output information and a clock edge that is employed to produce the portion of central-output information.

28. The system of claim 1 in combination with the processorless central equipment, wherein the processorless central equipment comprises first processorless-central equipment, wherein the portion of central-output information comprises a portion of first central-output information, and further comprising second processorless-central equipment  
 5 that is connected with the plurality of communication nodes;

wherein the first communication node sends the one or more first portions of node-output information to the first processorless-central equipment and to the second processorless-central equipment, wherein the one or more additional communication nodes send the one or more additional portions of node-output information to the first  
 10 processorless-central equipment and to the second processorless-central equipment;

wherein the first communication node receives the portion of first central-output information from the first processorless-central equipment.

29. The system of claim 28, wherein the first communication node receives the portion of first central-output information from the first processorless-central equipment and a  
 15 portion of second central-output information from the second processorless-central equipment, wherein the portion of second central-output information comprises one or more of:

the one or more first portions of node-output information; and

the one or more additional portions of node-output information.

30. The system of claim 29, wherein the first communication node processes information generated during operation of the first communication node to select a first subportion of the portion of first central-output information for employment by the first communication node and a second subportion of the portion of the second central-output information for employment by the first communication node.

31. The system of claim 28, wherein the first communication node sends one of the one or more first portions of node-output information to the first processorless-central equipment in a time slot that corresponds to a time slot of a first set of time slots that comprises a first communication frame in which the first communication node receives from the first processorless-central equipment the portion of first central-output information;

wherein the first communication node sends the one of the one or more first portions of node-output information to the second processorless-central equipment in a time slot that corresponds to a time slot of a second set of time slots that comprises a second communication frame in which the first communication node receives from the second processorless-central equipment a portion of second central-output information;

wherein the first communication node receives a portion of information from the first processorless-central equipment in the time slot of the first set of time slots;

wherein the first communication node receives a portion of information from the second processorless-central equipment in the time slot of the second set of time slots;

wherein the first communication node compares one or more values of the one of the one or more first portions of node-output information with one or more values of the portion of information from the first processorless-central equipment in the time slot of the first set of time slots and with one or more values of the portion of information from the second processorless-central equipment in the time slot of the second set of time slots to select either the portion of first central-output information or the portion of second central-output information for employment by the first communication node in conjunction with the time slot of the first set of time slots and in conjunction with the time slot of the second set of time slots.



32. The system of claim 1 in combination with a maintenance node of one or more maintenance nodes of the one or more additional communication nodes, wherein the maintenance node receives from the processorless central equipment the portion of central-output information, wherein the maintenance node monitors the one or more first portions of node-output information and the one or more additional portions of node-output information from the portion of central-output information to check correctness of operation of one or more portions of the system, wherein the maintenance node sends one or more report portions, of the one or more additional portions of node-output information, to the processorless central equipment.

33. The system of claim 1 in combination with the plurality of communication nodes, wherein each of the plurality of communication nodes sends a corresponding one or more portions of node-output information to the processorless central equipment, wherein each of the plurality of communication nodes receives from the processorless central equipment the portion of central-output information, wherein the portion of central-output information comprises all the portions of node-output information.

34. A method, comprising the steps of:

sending one or more first portions of node-output information to processorless central equipment from a first communication node of a plurality of communication nodes connected with the processorless central equipment, wherein one or more additional communication  
5 nodes of the plurality of communication nodes send one or more additional portions of node-output information to the processorless central equipment; and

receiving at the first communication node a portion of central-output information from the processorless central equipment, wherein the portion of central-output information comprises the one or more first portions of node-output information and the one or more  
10 additional portions of node-output information.

35. The method of claim 34, wherein the step of sending the one or more first portions of node-output information to the processorless central equipment from the first communication node of the plurality of communication nodes connected with the processorless central equipment and the step of receiving at the first communication node the portion of central-output information from the processorless central equipment comprise the steps of:

selecting a time duration of an interval to be approximately equal to a maximal expected signal-propagation delay between the processorless central equipment and the plurality of communication nodes over a respective plurality of operable passages;

10 sending one of the one or more first portions of node-output information to the processorless central equipment from the first communication node within the interval before a time slot of a communication frame of the portion of central-output information, wherein a time duration of the interval is minor relative to a time duration of the communication frame; and

15 receiving at the first communication node the one of the one or more first portions of node-output information in the time slot of the communication frame of the portion of central-output information from the processorless central equipment.

36. The method of claim 34, wherein the step of sending the one or more first portions of node-output information to the processorless central equipment from the first communication node of the plurality of communication nodes connected with the processorless central equipment and the step of receiving at the first communication node the portion of central-output information from the processorless central equipment comprise the steps of:

sending a corresponding one or more portions of node-output information to the processorless central equipment from each of the plurality of communication nodes; and

receiving at each of the plurality of communication nodes the portion of central-output information from the processorless central equipment, wherein the portion of central-output information comprises all the portions of node-output information

37. An article, comprising:

a computer-readable signal-bearing medium; and

means in the medium for sending one or more first portions of node-output information to processorless central equipment from a first communication node of a plurality of communication nodes connected with the processorless central equipment, wherein one or more additional communication nodes of the plurality of communication nodes send one or more additional portions of node-output information to the processorless central equipment; and

means in the medium for receiving at the first communication node a portion of central-output information from the processorless central equipment, wherein the portion of central-output information comprises the one or more first portions of node-output information and the one or more additional portions of node-output information.

38. The article of claim 37, wherein the means in the medium for sending the one or more first portions of node-output information to the processorless central equipment from the first communication node and the means in the medium for receiving at the first communication node the portion of central-output information from the processorless central equipment comprise:

means in the medium for sending one of the one or more first portions of node-output information to the processorless central equipment from the first communication node;

means in the medium for receiving at the first communication node the one of the one or more first portions of node-output information in a time slot of a communication frame of the portion of central-output information; and

means in the medium for comparing at the first communication node one or more values of the one of the one or more first portions of node-output information with one or more values from the time slot of the communication frame of the portion of central-output information to check correctness of operation of one or more portions of the system.

39. The article of claim 37, wherein the means in the medium for sending the one or more first portions of node-output information to the processorless central equipment from the first communication node and the means in the medium for receiving at the first communication node the portion of central-output information from the processorless central equipment comprise:

means in the medium for sending a corresponding one or more portions of node-output information to the processorless central equipment from each of the plurality of communication nodes; and

means in the medium for receiving at each of the plurality of communication nodes the portion of central-output information from the processorless central equipment, wherein the portion of central-output information comprises all the portions of node-output information.

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